Application Number: T2-00006 **Scientific Score**: 90

Title: Training in Stem Cell Biology at [redacted]

Specific names of individuals and institutions are blacked out to preserve applicant confidentiality where possible.

Proposal Abstract as Submitted by Applicant

The [redacted] Stem Cell Biology Training Program will educate postdoctoral scholars in stem cell biology, its various potential medical applications, as well as the social, ethical and legal issues in this field. In addition to our present stem cell course offerings, we have organized a new bioethics course that emphasizes issues raised by stem cell research and applications. We have also initiated a collaboration with the [redacted] and [redacted] to offer a new tri-campus lecture course in stem cell biology.

The major strengths of a CIRM training program at [redacted] are the extremely high quality of the trainee population, the strength and cross-disciplinary nature of research offerings, the research facilities, and the available and new courses. Relevant areas of current research at [redacted] include embryonic and adult stem cell plasticity, stem cells and cancer, embryonic development, imaging technology, tissue engineering and macromolecular fabrication, computational biology, nanoscale biology and chemistry, and the basic science of hematopoietic, muscle, endothelial and neural stem cells. The cells and organisms being studied in this context include yeast, *C. elegans*, *Drosophila*, *Xenopus*, zebrafish, chick, rodents and humans. The new, collaborative part of this training program utilizes the expertise at [redacted] and [redacted] in the areas of human embryonic stem cell growth and differentiation, cutting edge gene transfer technology application in the clinic, stem cell research in a variety of organs, as well as medical ethics. Together, these institutions can provide a broad, in depth curriculum for trainees. This collaboration also offers the opportunity and stimulus for basic scientists to become familiar with related clinical issues and the potential application of their findings to disease.

To enhance interaction among the CIRM trainees and to keep them up to date in this field, the [redacted] program will include new stem cell seminar and journal club programs, as well as an annual symposium.

Benefit of this Program to California

This program will benefit the people and the state of California by providing high-quality training in the scientific, clinical, social, and ethical aspects of stem cell research to the scientists and clinicians who will develop and apply future therapies in this rapidly emerging field.

Summary of Review

This grant application, which was designated as a type II, proposes a training program at this premier research institution for 10 post-doctoral scholars over 3 years. The specific focus of this program on post-doctoral training is clearly described in the application. The proposal builds on the existing scientific strengths of the institution and complements it with a well-organized training program in stem cell biology. The coursework will consist

of existing stem cell biology courses augmented with newly developed courses in bioethics and a tri-institutional lecture course that will join this institution with a local medical school and hospital. The leadership is very strong with the director being exceptionally qualified and an executive committee that will assess trainee progress, evaluate new courses and trainee applicants, and administer events. The caliber of the training faculty is among the very best in the world and offer strengths in several areas directly related to the stem cell training program including developmental biology, neurobiology, blood-cell development, and imaging. The academic qualifications of the applicant pool are also impressive and an effort to recruit and retain minority trainees has been ensured.

Overall Strengths and Weaknesses

This application is very strong in all respects including outstanding mentor faculty and training environment. The rationale for coursework is well-described and a detailed syllabus is already available for each course. The integration of basic research with medical applications is strengthened through indicated collaborations with a nearby medical school and hospital. Weaknesses of the program are considered minor, but a lack of an organized laboratory training course is mentioned.

Recommendations

Highly meritorious, recommended for funding.

	Pre	Post	Clinical	Total
Fellows Requested:	0	10	0	10
Fellows Recommended:	0	10	0	10

	Year 1	Total
Budget Requested:	$ 772,860	$ 2,318,580
Budget Recommended:	$ 772,860	$ 2,318,580